Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (currently amended): A freestanding micrometer for determining the diameter of a cylindrical body, the freestanding micrometer comprising:

a housing;

means for supporting the housing on a surface of the cylindrical body while the cylindrical body is oriented so that its longitudinal axis is approximately horizontal, the support means enabling the freestanding micrometer to travel along a longitudinal length of the cylindrical body and comprising wheels having axes of rotation oriented in a substantially vertical direction when supporting the housing on the surface of the cylindrical body;

first measurement means movably supported by the housing so that the position of the first measurement means can be altered in a lateral direction approximately perpendicular to the longitudinal axis of the cylindrical body, the first measurement means being adapted for sensing a first surface point of the

cylindrical body laterally spaced apart from the housing and disposed in a cross-sectional plane of the cylindrical body, the first surface point defining a terminal of a chord lying in the cross-section plane of the cylindrical body;

second measurement means mounted to the housing for contact with a second surface point of the cylindrical body disposed in the cross-sectional plane of the cylindrical body, the second surface point defining a location along the length of the chord; and

means for determining the diameter of the cylindrical body based on the length and height of the chord ascertained from first and second outputs of the first and second measurement means, respectively.

Claim 2 (original): The freestanding micrometer according to claim 1, wherein the housing is positioned on the cylindrical body while the cylindrical body is oriented so that the longitudinal axis of the cylindrical body is approximately horizontal, the second measurement means is positioned approximately top-dead-center on the cylindrical body and the chord is horizontal so that the second surface point locates the midpoint of the length of the chord, the length of the chord being ascertained by the position in the lateral direction of the first measurement means relative to the second measurement means.

Claim 3 (original): The freestanding micrometer according to claim 1, wherein the determining means is programmed to calculate the diameter of the cylindrical body based on the formula

$$d = (c^2 + 4h^2)/4h$$

where d is the diameter of the cylindrical body, c is the length of the chord, and h is the height of the chord.

Claim 4 (original): The freestanding micrometer according to claim 1, wherein the determining means comprises:

a computer outside the housing for calculating the diameter of the cylindrical body; and

means for transmitting the first and second outputs to the computer.

Claim 5 (canceled)

Claim 6 (currently amended): The freestanding micrometer according to claim 1, wherein the wheels are supported by ~~claim 5, wherein the support means comprises wheels supported by bearings, the wheels having axes of rotation oriented in a vertical direction when supporting the housing, the~~ bearings having diameters larger than the diameters of the

wheels.

Claim 7 (original): The freestanding micrometer according to claim 6, further comprising means for sensing a distance the freestanding micrometer travels along the longitudinal length of the cylindrical body.

Claim 8 (original): The freestanding micrometer according to claim 7, further comprising means for determining a profile of the cylindrical body along the longitudinal length thereof based on changes in the diameter of the cylindrical body determined at different locations along the longitudinal length of the cylindrical body.

Claim 9 (currently amended): An electronic profile acquisition micrometer system for sensing the diameter and variations in the diameter of a cylindrical body while the cylindrical body is oriented so that its longitudinal axis is approximately horizontal, the micrometer system comprising:

a portable freestanding micrometer unit;

means for supporting the micrometer unit on a surface of the cylindrical body while the cylindrical body is oriented so that its longitudinal axis is approximately horizontal, the supporting means comprising wheels disposed so as to contact the surface of the cylindrical body when the micrometer unit is supported on the surface by the supporting means, each of the wheels having an axis of rotation oriented in a substantially vertical direction when the micrometer unit is supported by the supporting means on the surface of the cylindrical body; and

means for determining the diameter of the cylindrical body as the micrometer unit travels on the surface along a longitudinal length of the cylindrical body while the wheels contact the surface of the cylindrical body and the axes of rotation of the wheels are substantially vertical.

~~a portable freestanding micrometer unit comprising:~~

~~a housing;~~

~~wheels mounted to the housing and adapted for supporting the~~

~~housing on an upper surface of the cylindrical body while the cylindrical body is oriented so that the longitudinal axis thereof is approximately horizontal and the housing travels on the upper surface of the cylindrical body along a longitudinal length thereof, each of the wheels having an axis of rotation oriented in a substantially vertical direction when supporting the housing on the upper surface of the cylindrical body;~~

~~an arm mounted to the housing and projecting outwardly therefrom in a lateral direction approximately perpendicular to the longitudinal axis of the cylindrical body, the arm having graduations along a length thereof;~~

~~first electronic linear measurement means for producing a first output signal, the first electronic linear measurement means being movably mounted to the arm so that the first electronic linear measurement means can be selectively positioned along the length of the arm with the graduations, the first electronic linear measurement means being adapted for contacting a first surface point of the cylindrical body when the first electronic linear measurement means is vertically displaced, the first surface point being laterally spaced apart from the housing and disposed in a cross-sectional plane of the cylindrical body, the first surface point defining a terminal of a horizontal chord lying in the cross-section plane of the cylindrical body; and~~

~~second electronic linear measurement means for producing a~~

~~second output signal, the second electronic linear measurement means being mounted to the housing for contacting a second surface point of the cylindrical body beneath the housing when the second electronic linear measurement means is vertically displaced, the second surface point being disposed in the cross-sectional plane of the cylindrical body and locating the midpoint of the length of the horizontal chord;~~

~~data acquisition means for receiving the first and second output signals from the first and second electronic linear measurement means and storing the output signals as data;~~

~~a computer separate from and outside the housing for receiving the data stored by the data acquisition means and calculating the diameter of the cylindrical body based on the length and height of the horizontal chord ascertained from the first and second output signals of the first and second electronic linear measurement means, the length of the horizontal chord being ascertained by the relative positions in the lateral direction of the first and second surface points sensed by the first and second electronic linear measurement means, the height of the horizontal chord being ascertained by the relative vertical positions of the first and second surface points sensed by the first and second electronic linear measurement means; and~~

~~means for connecting the computer to the data acquisition means for~~

~~transmitting the data.~~

Claim 10 (currently amended): The electronic profile acquisition micrometer system according to claim 9, wherein the determining means ~~computer~~ is programmed to calculate the diameter of the cylindrical body based on the formula

$$d = (c^2 + 4h^2)/4h$$

where d is the diameter of the cylindrical body, c is the length of a horizontal chord measured by the determining means, ~~the horizontal chord,~~ and h is the height of the horizontal chord.

Claim 11 (currently amended): The electronic profile acquisition micrometer system according to claim 9, wherein the wheels are supported by bearings having diameters larger than the diameters of the wheels. ~~and have axes of rotation oriented in a vertical direction when supporting the housing.~~

Claim 12 (currently amended): The electronic profile acquisition micrometer system according to claim 9, further comprising means for sensing a distance the micrometer unit ~~housing~~ travels along the longitudinal length of the cylindrical body.

Claim 13 (original): The electronic profile acquisition micrometer system according to claim 12, further comprising means for determining a profile of the cylindrical body along the longitudinal length thereof based on changes in the diameter of the cylindrical body continuously determined along the longitudinal length of the cylindrical body.

Claim 14 (original): The electronic profile acquisition micrometer system according to claim 9, further comprising means for sensing a temperature of the cylindrical body adjacent at least one of the first and second surface points.

Claim 15 (currently amended): A method of determining the diameter of a cylindrical body, the method comprising the steps of:

supporting a housing on a surface of the cylindrical body while the cylindrical body is oriented so that its longitudinal axis is approximately horizontal, the housing being supported with wheels that contact the surface of the cylindrical body and have axes of rotation oriented in a substantially vertical direction while supporting the housing on the surface of the cylindrical body;

~~positioning a first measurement means relative to the housing in a lateral direction approximately perpendicular to the longitudinal axis of the~~

~~cylindrical body;~~

~~producing a first output signal with the first measurement means by sensing a first surface point of the cylindrical body laterally spaced apart from the housing and disposed in a cross-sectional plane of the cylindrical body, the first surface point defining a terminal of a chord lying in the cross-section plane of the cylindrical body;~~

~~producing a second output signal with a second measurement means by sensing a second surface point of the cylindrical body adjacent the housing and disposed in the cross-sectional plane of the cylindrical body, the second surface point defining a location along the length of the chord;~~ and

determining the diameter of the cylindrical body while causing the housing to travel on the surface along a longitudinal length of the cylindrical body while the wheels contact the surface of the cylindrical body and the axes of rotation of the wheels remain substantially vertical. ~~based on the length and height of the chord ascertained from the first and second output signals.~~

Claim 16 (currently amended): The method according to claim 15, the method further comprising the steps of:

positioning a first measurement means relative to the housing in a lateral direction approximately perpendicular to the longitudinal axis of the

cylindrical body;

producing a first output signal with the first measurement means by sensing a first surface point of the cylindrical body laterally spaced apart from the housing and disposed in a cross-sectional plane of the cylindrical body, the first surface point defining a terminal of a chord lying in the cross-section plane of the cylindrical body; and

producing a second output signal with a second measurement means by sensing a second surface point of the cylindrical body adjacent the housing and disposed in the cross-sectional plane of the cylindrical body, the second surface point defining a location along the length of the chord;

wherein the diameter of the cylindrical body is determined based on the length and height of the chord ascertained from the first and second output signals. ~~wherein the housing is supported on an upper surface of the cylindrical body, the second measurement means is positioned approximately top-dead-center on the cylindrical body and the chord is horizontal so that the second surface point locates the midpoint of the length of the chord, the length of the chord is ascertained by the relative positions in the lateral direction of the first and second surface points sensed by the first and second measurement means, the height of the chord being ascertained by the relative vertical positions of the first and second surface points sensed by the first and second~~

~~measurement means.~~

Claim 17 (currently amended): A method of determining the diameter of a cylindrical body, the method comprising the steps of:

supporting a housing on a surface of the cylindrical body;

supporting a first measurement means with an arm mounted to the housing and projecting outwardly therefrom, the arm having graduations along a length thereof, the graduations defining a chord scale corresponding to multiple chord lengths lying in a cross-section plane of the cylindrical body, the first measurement means being movably mounted to the arm to enable selective positioning of the first measurement means along the length of the arm with the graduations;

positioning the first measurement means at one of the graduations on the arm corresponding to one of the multiple chord lengths based on the size of the cylindrical body, the first measurement means locating a terminal of a chord corresponding to the one of the multiple chord lengths;

locating a point along the length of the chord with a second measurement means; and

determining the diameter of the cylindrical body based on the length and height of the chord. ~~The method according to claim 15, wherein the~~

~~diameter is determined with a computer program that calculates the diameter of the cylindrical body based on the formula $d = (c^2 + 4h^2)/4h$ where d is the diameter of the cylindrical body, c is the length of the chord, and h is the height of the chord.~~

Claim 18 (currently amended): The method according to claim 16, ~~claim 15,~~ wherein the first and second output signals are transmitted from the housing to a computer outside the housing, and the computer calculates the diameter of the cylindrical body.

Claim 19 (currently amended): The method according to claim 15, further comprising the steps of:

~~causing the housing to travel along a longitudinal length of the cylindrical body;~~

sensing a distance the housing travels along the longitudinal length of the cylindrical body; and

determining a profile of the cylindrical body along the longitudinal length thereof based on changes in the diameter of the cylindrical body determined at different locations along the longitudinal length.

Claim 20 (original): The method according to claim 15, further comprising the step of sensing a temperature of the cylindrical body.